

PENNSYLVANIA AND NEW JERSEY SPIDERS OF THE FAMILY LYCOSIDAE.

BY WITMER STONE.

The Lycosidae comprise the largest spiders of the northern United States. They are all ground species, and are found running among grass and dead leaves or hiding beneath stones and logs. Some of the species dig tube-like holes in the ground. These spiders spin no regular web, though *Dolomedes* and *Ocyale* make a rough web on weeds or bushes for their young. The eggs are encased in a tough silken bag, which is carried about by the female. When they have hatched, the bag splits open around the middle, apparently cut by the jaws of the female, and the young swarm out and cling to her body. In this way they are carried about for a time until able to shift for themselves. In Pennsylvania the eggs of most of the species are deposited about the middle of August.

The male spiders are about the same size as the females, and in their markings differ but little from them, being usually somewhat brighter.

The species of Lycosidae are usually marked with various shades of brown, gray, buff and black. They are thickly covered with hairs, and as many of the markings are due to patches of different colored hairs they often present quite a different appearance when dry and when wet with alcohol.

The Lycosidae have well-developed legs. The fourth pair are the longest, the third pair shortest, and the first and second pairs about equal in length. The thorax and abdomen are rather elongated and the jaws are well developed. The eyes are in three rows: four small ones in a slightly-curved row on the front of the head, above the jaws, and four large ones arranged in two rows on the top of the head, forming a quadrilateral (except in *Dolomedes* and *Ocyale*, where the posterior row is nearly on a line with the middle one.)

Authors differ somewhat in the number of genera in which they arrange the species of Lycosidae. Dr. Marx, in his recent "Catalogue of the Described Araneae of Temperate North America," divides the family into eight genera, while Emerton (Lycosidae of New England, Trans. Connecticut Acad., Vol. VI, p. 481) recognizes but six, considering *Trochosa* and *Tarentula* as identical with

Lycosa. The three are certainly very closely allied. *Trochosa*, however, with its low, rounded cephalothorax, seems sufficiently distinct; but *Tarentula*, at least as far as our one species, *T. kochii*, is concerned, does not seem to me distinct from *Lycosa*.

The genera which occur in our fauna can be distinguished by the following key. I have included *Aulonia*, as *A. aurantiaca* has been found both north and south of Pennsylvania, though I have not been able to find it here.

Family LYCOSIDAE.

I. Eyes in three horizontal rows.

a. Upper spinnerets not longer than the lower.

b. Length of dorsal eye-area more than one-quarter of the length of the cephalothorax. Spiders small. PARDOSA.

bb. Length of the dorsal eye-area less than a quarter of the length of the cephalothorax. Spiders large, or of medium size.

c. Head low in front, and sloping obliquely on the sides.

TROCHOSA.

cc. Head high in front; sides more nearly perpendicular.

LYCOSA.

aa. Upper spinnerets longer than the lower.

b. Dorsal eye-area very large, occupying fully one-third of the top of the cephalothorax. AULONIA.

bb. Dorsal eye-area occupying much less than a third of the cephalothorax. PIRATA.

II. Eyes apparently in two horizontal rows, which are convex anteriorly (i. e., posterior eyes so far forward as to be nearly on a line with those of the middle row.)

a. Front row of eyes equidistant from the second row and the anterior edge of the cephalothorax. OCYALE.

aa. Front row of eyes much nearer to the second row than to the anterior edge of the cephalothorax. DOLOMEDES.

Genus LYCOSA.

The spiders of this genus are usually large, with well-developed jaws and strong legs. The front row of eyes is straight, or slightly curved upwards in the middle; the central pair are somewhat larger than the others. The eyes of the second row are the largest, and

are separated by about their diameter from one another. The dorsal eyes are somewhat smaller and are a little farther apart.

The following key will serve to distinguish the species which I have found in eastern Pennsylvania and New Jersey:—

- I.* Abdomen with a distinct median brown band running its *entire* length, and bordered on each side by a buff band. Thorax buff, with brown stripes.
- a.* Median band with edges entire. *L. punctulata.*
 - aa.* Median band with edges notched anteriorly, and including several pairs of buff spots posteriorly. *L. scutulata.*
- II.* Abdomen never with a median brown band running its entire length (except *L. arenicola*, in which case the thorax is not banded buff and brown.)
- a.* Cephalothorax not banded, or with a narrow light median band not nearly as broad as the eye-area.
 - b.* Cephalothorax polished and shining, with a few scattered hairs.
 - c.* Abdomen light gray, sometimes nearly white, with a median notched brown band. *L. arenicola.*
 - cc.* Abdomen mottled with black and buff; no distinct figure. *L. polita.*
 - bb.* Cephalothorax covered with short hairs, not polished.
 - c.* Femora strongly banded above and below. *L. tigrina.*
 - cc.* Femora not banded.
 - d.* Intensely black beneath; band on the cephalothorax obsolete. *L. carolinensis.*
 - dd.* Brown beneath, with a few black dots; band on the cephalothorax distinct. *L. nidicola.*
 - aa.* Cephalothorax with a light median band as broad anteriorly as the eye-area.
 - b.* Abdomen with a central light band running its entire length, and which contains a short dark band.
 - c.* Under side of abdomen uniform light buff. *L. ocreata.*
 - cc.* Under side of abdomen with a semi-circular black mark, or black, with two central light spots. *L. communis.*

bb. Abdomen gray, with two dark spots at the anterior end, often with several small dorsal spots on a line with these, and sometimes a short median band.

e. Band on the cephalothorax deeply notched in front of the dorsal groove. *L. kochii.*

cc. Band on the cephalothorax with the margins entire. *L. frondicola.*

bbb. Abdomen very light gray, with a dark central-toothed band running its entire length. *L. arenicola.*

bbbb. Abdomen black, mottled with buff; no distinct figure. *L. polita.*

The median band of the cephalothorax is often obsolete in *L. polita* and *arenicola*, so they are inserted twice.

L. carolinensis, Walek. (Pl. XV, figs. 6, 6a.)

Gray or dark brown above, without any distinct pattern on the cephalothorax. A short black median band on the forepart of the abdomen. Under side of abdomen, sternum and coxae, deep black. The male has two rows of light dots on the abdomen reaching from the middle of the black central stripe to the posterior extremity. Length of female, 25 mm.

The deep black color of the under surface, and the unbanded legs, serve to distinguish this species from the next, while its large size separates it from the other members of the genus.

I have occasionally found this spider under stones, but most frequently at the bottom of the tube-like holes which it digs in meadows or on the edges of woodland. Females with egg-bags have been taken in their burrows during the last week of August; while others, apparently full sized, had not deposited their eggs by the middle of September. Males have been taken running on the ground in grass fields. This species has been observed in Philadelphia and Chester County, Penn., and also in Mercer County, in the western part of the State.

L. tigrina, (McCook.) (Pl. XV, figs. 7, 7a, 7b, 7c.)

McCook, Trans. Am. Ent. Soc., VII (Proceedings), p. XI.

L. vulpina, Emerton, Trans. Conn. Acad., VI, p. 487, pl. 47, fig. 2.

McCook, Amer. Spiders and their Spinning Work, Vol. I, p. 523, II, p. 404.

Cephalothorax brown above, with a light median stripe, very narrow between the eyes, becoming wider in the middle, and two light lateral bands. The abdomen is dark brown, sometimes with

indications of black markings; beneath brown. The abdomen marked with black dots, and usually with three dark bands uniting towards the posterior extremity. The legs are brown; the femur, patella and tibia with light and dark bands. The male is much lighter colored, and the bands on the thorax are very prominent. The under side of the abdomen in one specimen has the black bands very well marked, while in another it is uniform buff with a few black dots. Length of adult female, 25 mm.

This species, especially the light-colored male, somewhat resembles *Dolomedes tenebrosus* at first sight.

Adult males and females were collected under stones in woodland during the last week of August. The eggs had not yet been deposited. Two adult females were collected in a similar locality in York County, Penna., June, 1890. One of them had constructed a nest by hollowing out the earth under the center of the stone. From this a tunnel ran out to the edge of the stone, and at the mouth of this tunnel the spider probably watched for her prey. The whole floor of the nest was strewn with portions of beetles, mainly of the green *Cicindela sexguttata*.

L. nidicola, Emerton.

Above dark brown, with a narrow light band on the cephalothorax, and a submarginal light band on each side. There is a light band on the anterior part of the abdomen, in which is a shorter dark band. The abdominal markings, however, are often very obscure in the females. Beneath the abdomen is brown, with small black dots. Legs uniform brown. The male is lighter, and the markings are more distinct, and there are traces of two light lines from behind the dorsal eyes. Length of female, 18 mm.

This is the commonest species in the vicinity of Philadelphia. I have frequently found it under stones in woodland, and also inhabiting burrows similar to those of *L. carolinensis*. Nearly adult females have been taken in these holes as early as April 14th. While digging one of them out of its burrow some years ago I was bitten on the end of the finger. The pain was rather more intense than that experienced from the sting of a bee, and extended through the whole forearm. It did not last, however, more than half an hour, though the finger remained swollen for some time. I have taken this species in Philadelphia, Chester and York Counties, Penna., and at Pt. Pleasant, Ocean County, N. J.

L. arenicola, Scudder.

Scudder, Psyche II, p. 2.

McCook, Proc. Acad. Nat. Sci., Phila., p. 333.

Marx, Amer. Naturalist 1881, p. 396.

Above light gray, quite silvery in young specimens. The cephalothorax has a wide central band, which, however, is often indistinct, as the hairs rub off very easily, leaving the cephalothorax shining reddish-brown. The abdomen has a dark median band running its entire length, much cut or toothed on the edges, and including several pairs of small gray spots behind. The legs are gray, the front ones darkest and blackish beneath. The under side of the abdomen is gray, with a black spot around the spinnerets. Length of female, 17 mm.

This species I have met with only in the sandy districts of New Jersey, especially near the coast. Here they make tube-like burrows in the sand, usually lining them with silk. Numerous specimens were collected at Pt. Pleasant August 13th, 1888. Both males and females were found in the holes, but only one spider in each. The females were not fully grown, and had not yet deposited their eggs. The tubes were made in the loose sand, and were eight to ten inches deep, with a slight silky lining inside, but no collection of sticks or rubbish around the opening. My friend, Mr. A. P. Brown, made a careful study of these spiders at the same locality some years before, and states that most of the burrows examined by him had silky linings which extended out from the mouth of the hole, and the sand adhering to them formed flaps. These flaps, he noticed, were always drawn over the hole during rain or high wind, nearly covering the mouth of it, and serving as a protection to the spider within. Burrows situated in grassy localities some distance from the beach often had a few pieces of grass or small sticks collected around the mouth, but nothing like the turrets found by Dr. Marx, Dr. McCook, or Mr. Scudder. (For interesting accounts of these turrets see references above.)

The spiders inhabiting the sand-hills had the opening situated at the top of a slight mound, which seemed to serve as an additional protection from the particles of drifting sand. Adult females covered with young were taken from the holes in September.

L. polita, Emerton.

Above, cephalothorax smooth and shining, dark reddish-brown, with an indistinct lighter area extending from the eyes to the dorsal

groove. The abdomen is mottled with black and yellowish; there is usually a light median stripe containing a shorter dark stripe, and several light spots on the sides, but these markings are not at all distinct. Beneath there is a median black band on the abdomen. The legs are shining like the cephalothorax, and are short. Length of female, 10 mm.

This species I have taken only in York County, Penn. It is found under stones, but does not seem to be common.

L. frondicola Emerton. (Pl. XV, figs. 2, 2a, 2b.)

Above, cephalothorax brown with a broad gray central band as wide as the posterior pair of eyes. Abdomen gray with two dark spots on the anterior end, which are prolonged into bands on the sides. There are two black dorsal spots and sometimes a short median stripe as shown in Emerton's figure (Trans. Conn. Acad., vol. VI, pl. XLVI, fig. 3.) but in nearly all my specimens this stripe is obsolete. The under side of the abdomen is marked with a broad black band. Length of female 14 mm.

This species I have usually found running among dead leaves in woods, it is rather common about Philadelphia and has also been taken in York Co., Penn.

L. kochii Keys. (Pl. XV, figs. 3, 3a 3b.)

Above, cephalothorax brown with a gray median stripe as broad as the eye area, strongly indented on each side just in front of the dorsal groove. There are also indistinct submarginal bands. Abdomen gray with two black spots on the anterior end which are followed by several pairs of irregular dorsal spots and occasionally a short median stripe. Beneath gray with minute black dots usually arranged in four longitudinal lines converging at the spinnerets. Legs gray slightly banded on the femora. Length of female 14 mm.

This species closely resembles the preceding but may be distinguished by the band on the cephalothorax being incised about the middle.

It is common in the vicinity of Philadelphia being found under stones in woods. It has also been taken in Chester Co., Penn., and at several localities in New Jersey.

L. communis Emerton.

Above brown, cephalothorax with a light central band as broad as the eyes, and light lateral bands. Abdomen with a broad light median band coming to a point at the posterior extremity just above

the spinnerets. On the fore part of this band is a dark stripe edged with black ending in a point about the middle of the abdomen. There are also some black spots on the edges of the light stripe posteriorly. The under side of the abdomen is light buff with a black mark, shaped like a horse-shoe, open towards the front; sometimes the front ends of this mark are joined and there is a black median stripe, leaving only two buff spots. The markings above and below are very distinct. Length of female 12 mm.

I have found this species under stones and logs. It is not common about Philadelphia but is very abundant in York Co. along the Susquehanna River. I have also taken it in Chester Co., Penn. and at Pt. Pleasant, N. J.

L. ocreata Hentz.

Above, cephalothorax brown with a broad central and narrow lateral band. Region around the eyes black. Abdomen brown on the sides with a light central band indistinctly barred with brown on the posterior portion and with a central brown band reaching to about the middle. Under side of the abdomen uniform buff. Legs light with long spines, the first pair in the male thickly covered with black bristly hairs which stand out horizontally forming a conspicuous tuft.

I have taken this species near Philadelphia and in York Co., Penn. Length of male 7 mm.

L. punctulata Hentz.

Above, cephalothorax light buff with two longitudinal brown bands extending back from the eyes leaving a central buff band of about equal width. There is also a very narrow line of brown on the margin and traces of a submarginal line. The abdomen has a dark median band edged with black running its entire length and on each side of this, a buff band, while the sides are brown. The under side is buff, the abdomen usually with a few black dots. Legs buff. Length of female 15 mm.

I have taken this species in Philadelphia, Chester and Lancaster Counties, Penn. and at Point Pleasant, N. J. It is found running among grass but is not nearly as common as the next.

L. scutulata Hentz.

Similar to *L. punctulata*. Cephalothorax buff with two wide brown bands and a narrower buff one between them. Marginal line black, submarginal line brown, indistinct. The abdomen has a broad dark

median band with a narrow buff band on each side. The edges of the median band are cut or toothed anteriorly and it contains several pairs of buff spots in the posterior portion. The sides of the abdomen are dark brown; beneath it is uniform buff. Legs buff, the front pair in the male have the femur, patella, tibia and part of the tarsus dark brown. Length of female 16 mm.

This species is very common running in grass fields. The female makes a nest under stones when carrying her egg bag. The eggs are deposited during the latter part of August. Adult males were collected during the first week in August. I have taken this species in Philadelphia, Chester, Lancaster and York Counties, Penn.

Genus **TROCHOSA.**

This genus is quite similar to *Lycosa* but the cephalothorax is lower and the sides of the head much more oblique.

T. cinerea (Fab.)

General color very light gray nearly white (yellowish in alcohol). Cephalothorax with a number of irregular radiating brown markings. Eyes surrounded with black in alcohol but when dry the white hairs conceal the black patch. Abdomen marked in the center with a number of brown dots and patches of yellow hairs, with four short narrow brown lines on the anterior part, and some irregular brown lines on the dorsum. Beneath white. In alcohol there appears to be an irregular brown median band with two rows of white spots surrounded with brown. Legs white with black spines. Length of female 15 mm.

I have found this species only on the coast of New Jersey. Nearly adult females were collected under boards and rubbish near the beach on April 30th. On the night of Aug. 12th, 1889 while catching Amphipods and other small crustacea which abound on the beach after dark, I caught a number of these spiders which appeared to run down after the retreating waves in search of food. Some of these were females that had already deposited their eggs while others were not more than half grown.

Genus **PIRATA.**

The spiders of this genus are of rather small size. They bear considerable resemblance to *Lycosa* but the upper spinnerets are longer than the lower and the eyes of the middle row are very large and prominent and are usually separated from each other by less than

their diameter. The posterior eyes are somewhat farther forward than in *Lycosa*. There are usually three longitudinal lines on the cephalothorax which unite near the dorsal groove.

P. piratica Clerk.

Cephalothorax brown with three buff lines running back from the eyes and uniting into one at the dorsal groove, also a submarginal band on each side.

Abdomen with a median light stripe bordered with black, on the anterior portion, and outside of this, several pairs of yellowish spots becoming smaller and united by cross lines posteriorly, (when dry there are two longitudinal rows of small white dots on the back and some white markings on the sides and anterior margin) rest of abdomen blackish. Below buff with three black lines from the epigynum to the spinnerets, the side ones more or less contiguous with the dark coloring of the sides of the abdomen. Legs yellowish; the femora obscurely banded. Length of female 5 mm.

This species is very common about Philadelphia in damp fields and swamps. Females with egg bags have been collected about the middle of August.

P. elegans nov. sp. (Pl. XV, figs. 5, 5a.)

Cephalothorax brown with a light median band partially divided into three anteriorly by two narrow brown lines. No submarginal bands, but a very narrow whitish marginal line (only seen when dry). Abdomen reddish-brown with several pairs of black dots in a median row, the posterior ones smaller and connected by transverse lines. Beneath brown. Legs uniform yellowish. The peculiar shape of the epigynum can best be seen in the figure. It is usually quite prominent. Length of female 6 mm., 4th leg 8 mm., 1st leg 7 mm.

This species is rather abundant in damp woods in York Co., Penn., in June.

P. marxi nov. sp. (Pl. XV, figs. 1, 1a.)

General color reddish-brown. Cephalothorax with an indistinct buff median line with traces of side branches in front from the dorsal groove to the eyes. Lateral submarginal bands broken and indistinct. Abdomen with a light median band in the anterior portion of which is a shorter dark band terminating about the middle. On the posterior portion are two longitudinal rows of four buff dots. Legs reddish brown, lower side of abdomen uniform, somewhat

lighter than above. When dry the markings on the cephalothorax are very indistinct and it appears nearly uniform reddish-brown. The epigynum has a triangular depression on the posterior margin, the edges of which are horny, somewhat swollen and dark colored. Length of female 9 mm., 1st leg 10 mm., 2nd leg 11 mm., 3rd leg 9 mm., 4th leg 13 mm.

It gives me great pleasure to dedicate this species to Dr. George Marx, of Washington, D. C., who has greatly assisted me in my study of the Araneae.

This spider was collected in York Co, Penn., only one specimen was secured.

Genus **PARDOSA.**

The species of *Pardosa* are all small. The legs are long and slender, armed with long spines. The dorsal eye area occupies about one quarter of the cephalothorax and the eyes are large for the size of the spider. The following key will serve to separate the species that I have found in Pennsylvania and New Jersey.

I. Cephalothorax uniform black, shining. *P. nigra*

II. Cephalothorax with a light median band.

a. Band contracted just before the dorsal groove.

b. A distinct light median band on the abdomen.

c. Several distinct transverse light bands on the posterior part of the abdomen, male palpus black.

P. nigropalpis.

cc. Transverse bands obsolete, male palpus with the patella white.

P. albopatella.

bb. No distinct median band on the abdomen.

P. lapidicina.

aa. Band not contracted.

P. bilineata.

P. nigropalpis Emerton.

Female. Cephalothorax brown with a broad gray central band, broadest just behind the eyes then contracted and widened again around the dorsal groove and narrowed posteriorly. There are two narrow gray submarginal bands. The region around the eyes is black.

Abdomen dark brown with a median gray stripe reaching nearly to the middle and followed by several transverse gray stripes, becoming shorter posteriorly. Legs gray, indistinctly banded. The male is similar but darker with the markings more obscure. The palpi

are deep black and are very prominent. In alcohol the light markings appear yellowish. Length of female 5 mm.

This is one of our most common spiders and is abundant running on the ground in fields and gardens. Females have been taken with egg bags and some covered with young, during the early part of August.

P. albopatella Emerton.

Female. Cephalothorax similar to *P. nigropalpis*. Abdomen with a median light band reaching to the middle, the rest of the abdomen mottled but without any distinct cross stripes.

The male according to Emerton has the lateral bands of the cephalothorax broader and brighter than in *P. nigropalpis* while the patella of the palpus is white. Length of female 4 mm.

I have found only the female of this species and it does not seem to be very common about Philadelphia.

P. bilineata Emerton.

Female, cephalothorax dark brown with a distinct broad buff median band slightly wider at the anterior end, and on each side a light marginal band with a dark line down the middle of it. Eye region black. Abdomen brown with a bright yellowish central band in the anterior portion of which is a brown stripe, the posterior part has several black dots along the margin. Beneath the abdomen is light with four longitudinal lines converging near the spinnerets. The two median lines are sometimes indistinct. Length of female 7 mm.

This species is not very abundant but has been taken near Philadelphia.

P. lapidicina Emerton.

Cephalothorax brown, the central light band deeply incised in front of the dorsal groove and the anterior portion more or less obliterated, widest around the dorsal groove and suddenly narrowed posteriorly. Lateral bands broken and irregular. Abdomen brown with irregular yellowish spots arranged in two longitudinal rows and more or less connected transversely and longitudinally. Legs light, distinctly banded with brown. Length of female 7 mm.

This species I have taken only among the Susquehanna hills in York county, Penn.

P. nigra nov. sp. (Pl. XV, fig. 4, 4a.)

Cephalothorax smooth and shining, uniform black with a reddish brown luster, no stripes whatever. Sternum and coxae similar, somewhat lighter. Abdomen black, indistinctly mottled with olive brown or gray, without any distinct pattern, though there is a more or less distinct light median stripe on the anterior part reaching nearly to the middle. The sides of the abdomen are black, thickly speckled with small gray dots. Beneath brownish, with no distinct markings. Mandibles and palpi shining dark reddish brown, front edge of cephalothorax just below the first row of eyes, yellowish. Legs, femur dark shining like the cephalothorax, patella white; the first and second pairs have the other joints entirely yellowish white, the third pair are similar but with prominent black spines while the fourth pair have the tarsus banded with brown at the ends. Two females with egg bags were taken running in a pasture field in Chester Co., Penna., in the latter part of August. Length of female 5 mm. 1st leg $5\frac{1}{2}$ mm. 4th leg 9 mm.

Genus **OCYALE**.

The cephalothorax and abdomen are rather more elongated than in *Dolomedes* or *Lycosa*. The hind row of eyes is nearly on a line with the second, and the front row is equidistant between the second row and the front of the cephalothorax.

O. undata (Hentz).

Cephalothorax light buff with a broad, brown median band as wide as the eye area. Abdomen with a central band, somewhat scalloped on the edges. Legs buff. Old specimens have the legs darker and the abdominal markings less distinct. Length of female 12 mm.

This spider is quite common, being found on bushes or among grass where it spins a loose mass of web and deposits its egg bag. I have sometimes noticed it make its nest in the folds of a window curtain inside the house. I have taken specimens at Philadelphia and in Chester Co., Penna.

Genus **DOLOMEDES**.

The cephalothorax in this genus is very broad, the second and third rows of eyes are nearly as in *Ocyale* but the front row is much nearer to the second than to the edge of the cephalothorax. The species live about water.

D. tenebrosus Hentz. (Pl. XV, fig. 8.)

Cephalothorax brown with a broad light marginal band and a light one behind the eyes terminating in a point in front of the dorsal groove. There are also several dark radiating lines. The abdomen is gray and brown with several transverse black angular marks resembling the letter W, across the posterior portion. On the anterior part are two longitudinal black bands enclosing a lighter space between them, all these black bands are bordered with light buff. Beneath uniform brown. The coloration varies considerably in different individuals especially with age. Legs banded with brown and gray. Length of female 25 mm. from tip to tip of legs stretched longitudinally 90 mm.

This species is abundant about water, often inhabiting spring houses and boat houses. The female carries her bag of eggs in August and the young have been observed in a rough web on weeds early in September. This spider runs over the surface of water readily and frequently goes beneath when pursued. The male I have not seen.

D. sexpunctatus Hentz.

Cephalothorax reddish-brown with a bright silvery white band on each side. Abdomen brown with a similar band on each side and two rows of white dots down the back. Beneath brown. Legs uniform brown. The white markings do not show when the spider is wet with alcohol. From the note in Dr. Marx's Catalogue there seems to be some confusion about the male of this species and the preceding. I have a specimen from York Co., Penna., which I think is undoubtedly the male of *D. sexpunctatus* as it is just like the female except that the ground color is lighter, it having just cast its skin, and the white spots are all surrounded with black. Length of female 11 mm.

I have taken the female at Pt. Pleasant, N. J. near the beach. Dr. McCook has taken it at Philadelphia.

EXPLANATION OF PLATE XV.

- Fig. 1. *Pirata marxi*, female.
Fig. 1a. Epigynum of same.
Fig. 2. *Lycosa frondicola*, female.
Fig. 2a. Same, under side of abdomen.
Fig. 2b. Same, epigynum.
Fig. 3. *Lycosa kochii*, female.

- Fig. 3a. Same, under side of abdomen.
Fig. 3b. Same, epigynum.
Fig. 4. *Pardosa nigra*, female.
Fig. 4a. Epigynum of same.
Fig. 5. *Pirata elegans*, cephalothorax.
Fig. 5a. Epigynum of same.
Fig. 6. *Lycosa carolinensis*, under side of abdomen.
Fig. 6a. Epigynum of same.
Fig. 7. *Lycosa tigrina*, female.
Fig. 7a. Same, under side of abdomen.
Fig. 7b. Epigynum of same.
Fig. 7c. Male palpus of same.
Fig. 8. *Dolomedes tenebrosus*, female.